DATA EVALUATION RECORD

CHEMICAL: Oxine copper, Shaughnessey No. 024002

TEST MATERIAL: Oxine copper (copper 8-quinolinolate), Purity: 98%. A crystalline green powder.

STUDY TYPE: A 48-hour acute toxicity test with *Daphnia magna* under flow-through conditions

CITATION: Ward, G. Scott. 1994. Oxine copper (Copper 8-Quinolinolate): Acute toxicity to the water flea *Daphnia magna* Under flow-through test conditions. Guideline 72-2. Lab Project ID: J9006014d. Submitted by La Quinoleine, SA, performing lab Toxikon Environmental Sciences. MRID No. 432284-01

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CONCLUSIONS: This study appears to be scientifically sound and fulfills the data requirements for an acute toxicity test for aquatic invertebrates. The 48-hour EC_{50} value for Daphnia magna exposed to oxine copper under flow-through conditions was 162 µg/L with 95% confidence limits of 132 and 203 µg/L. The LOEC was 36.0 µg/L; the NOEC was not determined (< 36.0, the lowest concentration tested). The chemical is very highly toxic to aquatic invertebrates.

MATERIALS AND METHODS:

TEST ANIMALS: The daphnids, < 24 hours old, were obtained from Toxikon cultures which originated from US EPA, Duluth.

TEST SYSTEM: The dilution water had a total hardness and alkalinity range of 90 to 124 mg/L and 32 to 35 mg/L. Specific conductivity ranged from 508 to 787 micromhos per cm.

The toxicity test was conducted using an exposure system consisting of an intermittent flow proportional diluter calibrated to deliver the test concentrations with a 60% dilution factor. A test volume of approximately 220 mL was delivered to each test chamber during every cycle; the total volume was split into halves via a splitter box prior to entry into the test chambers. Test tanks were 11.3 L

NOTE: THERE WAS CONTROL MORTALITY, BUT AT LEAST ONE
OF THE LOWER CONCENTRATIONS HAD ZERO MORTALITY.
THEREFORE, ABBOTT'S CORRECTION IS NOT APPLICABLE.

lamb copper daphnia

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
478	20	20	100	9.536742E-05
293	20	18	90	2.012253E-02
177	20	10	50	58.80985
103	20	0	0	9.536742E-05
55.5	20	3	15	.1288414
36	20	2	10	2.012253E-02

THE BINOMIAL TEST SHOWS THAT 103 AND 293 CAN BE
USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT
CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL
ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 177

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
5	6.996175E-02	162.0721	132.0554	203.6592

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
5	.7385706	4.409118	1.452744E-03

SINCE THE PROBABILITY IS LESS THAN 0.05, RESULTS CALCULATED
USING THE PROBIT METHOD PROBABLY SHOULD NOT BE USED.

SLOPE = 3.174607
95 PERCENT CONFIDENCE LIMITS = .4463456 AND 5.902869

LC50 = 153.67
95 PERCENT CONFIDENCE LIMITS = 48.65331 AND 543.1558

LC10 = 61.17013
95 PERCENT CONFIDENCE LIMITS = .1958088 AND 117.4156

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